DETAILED ACTION

Claim Objections

1.   Claim 6 is objected to because of the following informalities: The word

"parametrized" after "wherein said law is" should be spelled "parameterized".

        Appropriate correction is required.

2.   Claim 8 is objected to because of the following informalities: the claim does not

end with a period. See MPEP 608.01(m).

        Appropriate correction is required.

3.   Claim 8 is objected to because of the following informalities: the claim recites the

limitation "said set of processors" on page 15, line 11. There is insufficient antecedent

basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

5.   Claims 10 and 11 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter. Claims 10 and 11 fail to fall within

a statutory category of invention. It is directed to the program itself, not a process

occurring as a result of executing the program, a machine programmed to operate in

accordance with the program nor a manufacture structurally and functionally

interconnected with the program in a manner which enables the program to act as a

computer component and realize its functionality. It is also clearly not directed to a

composition of matter. Therefore, it is non-statutory under 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Katsuo et al.

(US 6,029,001).

8.   Regarding claim 8, Katsuo discloses an input document for describing a

distribution of an image processing application over said set of processors, (Column 6,

lines 38-59)

        said input document comprising at least a module describing at least part of an

image processing function to be applied to at least one input image by a processor of

said set of processors, (Column 6, line 60 – column 7, line 8)

        said input image being divided into image strips, (Column 7, lines 34-45, divided

into blocks of pixels)

        said module comprising at least one input port for receiving image strips to be

processed by said module via at least one input link and/or at least one output port for

transmitting processed image strips over at least one output link, (Column 7, lines 46-

65, reading or writing of blocks of pixels)

said input/output port being specified by a geometry and a law, said geometry

defining a subdivision of said input image into a set of image strips and said law defining

a subset of said set of image strips that is to pass through said input/output port

(Column 7, lines 9-32, program code describing division into blocks and read/write

operations).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 1-6, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Katsuo et al. (US 6,029,001) in view of Broughton et al. (US 2003/0188299 A1).

11.   Regarding claim 1, Katsuo discloses a system for generating an executable code

to be executed by a set of processors, said system comprising:

reading means for reading an input document for describing a distribution of an

image processing application over said set of processors, (Column 6, lines 38-59)

said input document comprising at least a module describing at least part of an image processing function to be applied to at least one input image by a processor of said set of processors, (Column 6, line 60 – column 7, line 8)

said input image being subdivided into image strips, (Column 7, lines 34-45, divided into blocks of pixels)

said module comprising at least one input port for receiving image strips to be processed by said module via at least one input link and/or at least one output port for transmitting processed image strips over at least one output link, (Column 7, lines 46-65, reading or writing of blocks of pixels)

said input/output port being specified by a geometry and a law, said geometry defining a division of said input image into a set of image strips and said law defining a subset of said set of image strips that is to pass through said input/output port, (Column 7, lines 9-32, program code describing division into blocks and read/write operations)

Katsuo does not clearly disclose compiling means for detecting inconsistencies in said input document,

building means for building an executable code from said compiled document for programming said set of processors..

Broughton discloses compiling means for detecting inconsistencies in said input document, (Page 4, paragraph 0052)

building means for building an executable code from said compiled document for programming said set of processors (Page 4, paragraph 0053).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Katsuo to include syntax checking of program code to be compiled for execution on multiple processors as disclosed by Broughton because the chance of an error in the code being executed is reduced.

12.   Regarding claim 2, Katsuo in view of Broughton (Page 4, paragraph 0052) discloses said compiling means are designed to check a syntax of said input document and a validity of said distribution.

13.   Regarding claim 3, Katsuo (Column 7, lines 9-32, program code uses a well known "for loops" with an initial value, incremental value and ending value) in view of Broughton discloses said geometry locates an image strip by means of an image strip index, and said law defines said image strip index as a function of an iteration index.

14.   Regarding claim 4, Katsuo (Column 7, lines 9-32, parameters and values specified in program code) in view of Broughton discloses said geometry and said law are parametrized by parameters specified by said input document, said parameters being relative to a module.

15.   Regarding claim 5, Katsuo (Column 7, lines 9-32, absolute parameters defined in program code for the processing units to execute) in view of Broughton discloses calculating means for converting relative parameters into absolute parameters with respect to said distribution.

16.   Regarding claim 6, Katsuo (Column 7, lines 34-65) discloses said law is

parameterized by a rank and a period, said rank being the image strip index of a first

image strip and said period being a difference between the indices of two consecutive

image strips to be transmitted through said input/output port.

17.   Regarding claim 9, Katsuo discloses a method of distributing an image

processing application over a set of processors, said method comprising the steps of:

reading an input document, (Column 6, lines 38-59)

said input document being designed for describing a distribution of an image

processing application over said set of processors and comprising at least a module

describing at least part of an image processing function to be applied to at least one

input image by a processor of said set of processors, (Column 6, line 60 – column 7,

line 8)

said input image being divided into image strips, (Column 7, lines 34-45, divided

into blocks of pixels)

said module comprising at least one input port for receiving image strips to be

processed by said module via at least one input link and/or at least one output port for

transmitting processed image strips over at least one output link, (Column 7, lines 46-

65, reading or writing of blocks of pixels)

said input/output port being specified by a geometry and a law, said geometry

defining a subdivision of said input image into a set of image strips and said law defining

a subset of said set of image strips that is to pass through said input/output port

(Column 7, lines 9-32, program code describing division into blocks and read/write operations).

Katsuo does not clearly disclose compiling said input document for detecting inconsistencies in said input document,

building an executable code from said compiled input document for programming said set of processors.

Broughton discloses compiling said input document for detecting inconsistencies in said input document, (Page 4, paragraph 0052)

building an executable code from said compiled input document for programming said set of processors (Page 4, paragraph 0053).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Katsuo to include syntax checking of program code to be compiled for execution on multiple processors as disclosed by Broughton because the chance of an error in the code being executed is reduced.

18.   Regarding claim 11, Katsuo (Figure 1 and column 5, lines 31-40) in view of Broughton (Page 2, paragraphs 0013 and 0014) discloses a computer program comprising a set of instructions which, when loaded into a host processor, causes said host processor to carry out the method as claimed in claim 9.

19.   Claim 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuo et al. (US 6,029,001) in view of Broughton et al. (US 2003/0188299 A1) and further in view of Tustanowski and Starks ("The Visual basic Programming Language").

20.   Regarding claim 7, Katsuo in view of Broughton discloses all limitations as
discussed in claim 1.

        Katsuo in view of Broughton does not clearly disclose said input document has a
graphical format.

        Tustanowski and Starks disclose said input document has a graphical format
(Significant Language Features, paragraph 2, "As the programmer works in the
graphical environment, much of the program code is automatically generated by the
Visual Basic program").

        Therefore, it would have been obvious to a person of ordinary skill in the art at
the time the invention was made to modify Katsuo in view of Broughton to allow a user
to create program code graphically as disclosed by Tustanowski and Starks because
users would be able to prepare program code for execution quickly and without
requiring much knowledge of the programming language.

21.   Regarding claim 10, Katsuo (Figure 1 and column 5, lines 31-40) in view of
Broughton (Page 2, paragraphs 0013 and 0014) and further in view of Tutanowski and
Starks discloses an executable code comprising a set of instructions which, when
loaded into a set of processors, causes the set of processors to carry out the image
processing application specified by the input document as claimed in claim 7.

Conclusion

22.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ionesucu, Felicia, Mapping Image Rendering Operations onto Parallel Processors.

.Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHI HOANG whose telephone number is (571)270-3417. The examiner can normally be reached on Mon-Fri, 8:30am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on 571-272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phi Hoang/

Examiner, Art Unit 2628
June 6, 2008

/XIAO M. WU/
Supervisory Patent Examiner, Art Unit 2628